

Abbass Harb

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INTRODUCTION

I am a computer science student, passionate about technology, programming, and continuous learning. I am highly motivated to enhance my skills and contribute to innovative projects. My goal is to leverage my technical expertise and passion for technology to solve real-world problems and make positive impact in the field.

EDUCATION

Phoenicia University (PU) - Sarafand, Lebanon

October 2022 - Present

Bachelor of Computer Science

Key courses: Algorithms and Data Structures/Low-Level Programming/Computer Architecture/

Machine Learning/Database Systems

Expected Graduation Date: June 2026

National Evangelical School-Nabatieh, Lebanon

2007-2022

Lebanese Baccalaureate in Life Sciences

PROFESSIONAL EXPERIENCE

Mazen's Harb Garage for mechanic - Nabatieh, Lebanon

July 2022-Present

Car repair and maintenance service

Manager and cashier

- Supervised daily operations, ensuring employees met performance and quality standards
- Managed customer interactions, addressed inquiries, and ensured customer satisfaction
- Handled cash transactions and maintained accurate financial records
- Assisted in inventory management and ensured the availability of necessary supplies and tools

PROJECTS

Crohn's Disease Lesion Classification (Artificial Intelligence Project):

Python, PyTorch, scikit-learn, Topological Data Analysis (TDA) | May 2026

- Developed AI models to classify Crohn's disease lesions from endoscopic images using ResNet18, DenseNet121, and Vision Transformer architectures
- Integrated persistent homology, ensemble learning, and test-time augmentation (TTA) to improve model robustness
- Evaluated deep-learning and feature-based machine learning approaches, including classification on extracted image features

CPU Heat Distribution (Numerical Analysis Project):

MATLAB, Finite Difference Method | May 2026

- Modeled two-dimensional heat distribution in a CPU using the heat equation and finite-difference numerical methods
- Implemented MATLAB simulations to calculate temperature evolution and visualize heat distribution across the CPU
- Performed stability and error analysis to validate the numerical solution

Vehicle Maintenance Prediction (Machine Learning Project):

Python, Pandas, scikit-learn | May 2026

- Built a machine learning pipeline to predict vehicle maintenance risk using mileage, vehicle age, service history, reported issues, fuel efficiency, and other vehicle features
- Performed preprocessing, encoding, feature engineering, and evaluation across Decision Tree, Random Forest, Gradient Boosting, Extra Trees, KNN, and Naive Bayes models
- Compared model performance using accuracy, balanced accuracy, and F1-score to identify the strongest final approach

Linux Character Device Driver (Operating System Project):

C | January 2026

- Implemented a Linux character device driver in User-Mode Linux (UML) with multiple minor devices
- Added read/write operations backed by a 4KB circular buffer for efficient I/O
- Verified functionality using echo/cat tests and kernel logs (dmesg)

Helbawi Food Online Store (Software Engineering Project)

Full-stack e-commerce system (Flutter, FastAPI, MySQL) | January 2026

- Built customer and manager mobile apps with authentication, product catalog, cart, wishlist, and checkout flows.
- Designed MySQL schema and REST APIs for users, products, suppliers, orders, and notifications; implemented persistent login using token/session storage.

Flutter eCommerce Mobile Application (Mobile Programming Project)

Flutter (Dart), REST APIs, Provider, SharedPreferences | May 2025

- Implemented authentication (login/register/forgot password) with token/session persistence using SharedPreferences
- Fetched product data from a REST API and built product listing and dynamic product details screens
- Developed cart and wishlist features using Provider state management, including add/remove and totals
- Built a checkout flow with delivery form and Cash on Delivery order confirmation (simulated order submission)

Luxoria - Perfumes & Watches Website (Web Development Project)

Multi-page website using HTML5, CSS3, and JavaScript | May 2025

- Created homepage, category pages, and product details pages (including fragrance notes, pricing, and media) with a consistent luxury design.
- Implemented navigation (dropdowns/sections) and reusable components (cards/buttons) for a clear browsing experience.

Parallelized Dense Neural Network (Artificial Intelligence Project):

C | May 2025

- Designed a customizable DNN library supporting user-defined layers and activation functions
- Accelerated training via parallelization (OpenMP, MPI, OpenCL) while preserving accuracy
- Validated performance on the MNIST handwritten character dataset, achieving significant speedups

Bird Species Identifier via Bird Call (Machine Learning Project):

Python | January 2025

- Developed and trained a CNN model to identify bird species from audio input
- Engineered data processing algorithms to transform raw audio into CNN-compatible spectrograms
- Achieved high accuracy by optimizing parameters

Inventory Management System (Database Systems Project):

MySQL, Python (GUI) | May 2024

- Designed and implemented an inventory database schema in MySQL and produced an ER diagram to model entities and relationships
- Built a Python GUI application to manage inventory (CRUD operations) and track stock levels
- Enforced data integrity using primary/foreign keys, constraints, and normalization principles

Smartphone Usage Profiling (Data Science Project):

Python (Pandas, scikit-learn), Tableau | May 2024

- Created a unified dataset by merging app usage, daily phone statistics, and session-level logs, with engineered features for user profiling
- Performed preprocessing and exploratory data analysis (EDA) to uncover usage patterns across apps and time
- Trained and evaluated multiple regression models (e.g., Random Forest, Gradient Boosting) to predict total usage time and improve performance via tuning

Server Client Chat application (Computer Networks Project):

Python | May 2024

- Developed a multi-user chat system with custom room based messaging protocols
- Optimized concurrency handling using polling for multi-client support

SKILLS AND INTERESTS

Linguistic Skills: Fluent in English and Arabic, basic in French

Technical Skills: Java, C++, Python, SQL, HTML5, CSS3, JavaScript, Flutter, FastAPI, MySQL, REST APIs

Hobbies: Reading, Coding, Problem Solving

CERTIFICATIONS

Python for Data Science, AI & Development

Awarded September 2023

An online non-credit course authorized by IBM and offered through Coursera

CS107: C++ Programming

Awarded July 2023

C++ course offered by Saylor Academy

EXTRACURRICULAR ACTIVITIES

Computer Science Society-PU

2022-Present

Member

- Collaborated in many activities, including workshops, and contributing to community outreach programs

IEEE Member

October 2023 - Present

IEEE

Member (Membership ID: 99700063)

- Gained access to outer and new publications
- Gained access and contribution to IEEE Standards shaping global technologies
- Participated in several activities

Idea Fair-PU

May 2024

Participant

- Collaborated with classmate and made an Inventory Management System that handle issues faced by businesses such as tracking stock levels, managing suppliers, and generating sales reports
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